Surface

Collisions on a dry roadway surface make up 70% of the total reported two-lane curve collisions, compared to 77% of all two-lane road collisions and 77% of all statewide collisions (Table 8). Collisions on non-ideal roadway surface conditions (the combination of all conditions except dry) constitute a greater portion of total reported two-lane curve collisions (30%) than on all two-lane road collisions (23%) and all statewide collisions (23%). These findings tend to indicate that surface condition does influence collisions on curves where adverse surface conditions can lead to run-off-the-road collisions.

Table 8. Horizontal Curve Collision Roadway Surface Characteristics

Roadway Surface Condition	2-Lane Curve Collisions			All 2-Lane Collisions	All Roads Collisions		
	Setting		Total	Total	Setting		Total
	Urban	Rural			Urban	Rural	
Dry	71%	70%	70%	77%	79%	76%	77%
Wet	21%	21%	21%	17%	18%	18%	18%
Water	1%	1%	1%	1%	1%	1%	1%
Ice	4%	4%	4%	3%	2%	3%	2%
Snow	2%	2%	2%	2%	1%	2%	1%
Slush	1%	1%	1%	0%	0%	0%	0%

4.5 RESULTS

The collision analysis and characterization presented above led to the creation of Table 9 which presents 37 potential countermeasures (the rows of the table) that can be used to reduce the frequency and/or severity of horizontal curve collisions, particularly on two-lane roads. These countermeasures represent actions that can be taken to minimize the effects of one or more of the collision characteristics. The countermeasures were obtained from multiple sources in the literature, are based on NCHRPs guidance for potential countermeasures, and contain only curve collision countermeasures relevant to overrepresented curve characteristics in NC (the columns of the table). The list displays a degree of incompleteness, ambiguity, and redundancy, as a result. Still, Table 9 is useful in that it enables us to establish a relationship between the set of all countermeasures shown and the specific set of characteristics that are most troubling at curve collision locations. Such a comparison can be conducted by other states with a substitution of curve characteristics most applicable in that state. Furthermore, some studies have been conducted which validate the effectiveness of some of the countermeasures and collision modification factors (CMFs) have been found for them. The result of this paper is on determining the set of countermeasure that are related to curves. CMFs then enable us to quantify the individual members of that set.

For each of the countermeasures in Table 9, the check marks in the matrix indicate the type of collision factor the countermeasure is most likely to address. For example,